CLAIMS

1. An apparatus for electromagnetic compatibility-driven design, said apparatus comprising:

an electromagnetic field calculator configured and arranged to receive (A) placement information relating to a relative placement of a plurality of circuit components and (B) at least one emissions profile, each emissions profile corresponding to one among the plurality of circuit components; and

an electromagnetic interference calculator coupled to the electromagnetic field calculator and configured and arranged to receive at least one susceptibility profile, each susceptibility profile corresponding to one among the plurality of circuit components,

wherein the electromagnetic field calculator is further configured and arranged to output information regarding an induced electromagnetic field, and

wherein the electromagnetic interference calculator is further configured and arranged to receive the information regarding an induced electromagnetic field and to output information regarding effects caused by the induced electromagnetic field.

2. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein the electromagnetic field calculator is further configured and arranged to receive a circuit description, the circuit description including (E) at least one circuit component characterization, each circuit component characterization corresponding to one among the plurality of circuit components, and (F) connectivity information, said connectivity information relating to at least one electrical pathway, each electrical pathway connecting at least two among the plurality of circuit components.

3. The apparatus for electromagnetic compatibility-driven design according to claim 2, wherein the circuit description includes a schematic representation.

4. The apparatus for electromagnetic compatibility-driven design according to claim 2, wherein the circuit description includes a plurality of expressions in a hardware description language.

5. The apparatus for electromagnetic compatibility-driven design according to claim 2, wherein the circuit description includes a netlist.

6. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein the electromagnetic field calculator is further configured and arranged to receive information relating to at least one among a characteristic and a location of an electromagnetic shielding element.

7. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements.

8. The apparatus for electromagnetic compatibility-driven design according to claim 7, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having at least two spatial dimensions.

9. The apparatus for electromagnetic compatibility-driven design according to claim 7, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements includes an amplitude and a direction.

10. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein the placement information includes information relating to relative spatial locations and orientations among said plurality of circuit components.

11. The apparatus for electromagnetic compatibility-driven design according to claim 10, wherein the placement information includes information relating to relative spatial dimensions of said plurality of circuit components.

12. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements, and

wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having boundaries and at least two spatial dimensions, and

wherein the information regarding an induced electromagnetic field includes a plurality of amplitudes of the induced electromagnetic field, and

wherein each among the plurality of amplitudes corresponds to one among a plurality of spatial locations, and

wherein at least one among the plurality of spatial locations lies outside the boundaries of said grid.

13. The apparatus for electromagnetic compatibility-driven design according to claim 1, wherein each susceptibility profile represents a response of the corresponding circuit component to an electromagnetic field produced by a source of predetermined character and location.

14. A method for electromagnetic compatibility-driven design, said method comprising:

calculating an induced electromagnetic field based on (A) placement information relating to a relative placement of a plurality of circuit components and (B) at least one emissions profile, each emissions profile corresponding to one among the plurality of circuit components, and

calculating effects of the induced electromagnetic field based on at least one susceptibility profile, each susceptibility profile corresponding to one among the plurality of circuit components.

15. The method for electromagnetic compatibility-driven design according to claim 14, wherein calculating an induced electromagnetic field is based on a circuit description including (E) at least one circuit component characterization, each circuit component characterization corresponding to one among the plurality of circuit components, and (F) connectivity information, said connectivity information relating to at least one electrical pathway, each electrical pathway connecting at least two among the plurality of circuit components.

16. The method for electromagnetic compatibility-driven design according to claim 15, further comprising calculating a simulated circuit operation based on the placement information, the circuit description, and the calculated effects of the induced electromagnetic field.

17. The method for electromagnetic compatibility-driven design according to claim 16, further comprising comparing a result of said calculating a simulated circuit operation to at least one predetermined criterion.

18. The method for electromagnetic compatibility-driven design according to claim 17, further comprising modifying at least one among the circuit description and the placement information based on a result of said comparing.

19. The method for electromagnetic compatibility-driven design according to claim 15, wherein the circuit description includes a schematic representation.

20. The method for electromagnetic compatibility-driven design according to claim 15, wherein the circuit description includes a plurality of expressions in a hardware description language.

21. The method for electromagnetic compatibility-driven design according to claim 15, wherein the circuit description includes a netlist.

22. The method for electromagnetic compatibility-driven design according to claim 14, wherein calculating an induced electromagnetic field calculator is based on information relating to at least one among a characteristic and a location of an electromagnetic shielding element.

23. The method for electromagnetic compatibility-driven design according to claim 14, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements.

24. The method for electromagnetic compatibility-driven design according to claim 23, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having at least two spatial dimensions.

25. The method for electromagnetic compatibility-driven design according to claim 23, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements includes an amplitude and a direction.

26. The method for electromagnetic compatibility-driven design according to claim 14, wherein the placement information includes information relating to relative spatial locations and orientations among said plurality of circuit components.

27. The method for electromagnetic compatibility-driven design according to claim 26, wherein the placement information includes information relating to relative spatial dimensions of the plurality of circuit components.

28. The method for electromagnetic compatibility-driven design according to claim 14, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements, and

wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having boundaries and at least two spatial dimensions, and

wherein the information regarding an induced electromagnetic field includes a plurality of amplitudes of the induced electromagnetic field, and

wherein each among said plurality of amplitudes corresponds to one among a plurality of spatial locations, and

wherein at least one among said plurality of spatial locations lies outside the boundaries of said grid.

29. The method for electromagnetic compatibility-driven design according to claim 14, wherein each susceptibility profile represents a response of the corresponding circuit component to an electromagnetic field produced by a source of predetermined character and location.

30. A method for electromagnetic compatibility-driven design, said method comprising:

receiving a circuit description including (A) at least one circuit component characterization, each circuit component characterization corresponding to at least one among a plurality of circuit components, and (B) connectivity information relating to at least one electrical pathway, each electrical pathway connecting at least two among the plurality of circuit components;

based on the circuit description, calculating placement information relating to a relative placement of the plurality of circuit components;

based on the placement information and at least one emissions profile, calculating an induced electromagnetic field; and

based on at least one susceptibility profile, calculating effects of the induced electromagnetic field,

wherein each emissions profile corresponds to one among the plurality of circuit components, and

wherein each susceptibility profile corresponds to one among the plurality of circuit components.

31. The method for electromagnetic compatibility-driven design according to claim 30, further comprising calculating a simulated circuit operation based on the placement information, the circuit description, and the calculated effects of the induced electromagnetic field.

32. The method for electromagnetic compatibility-driven design according to claim 31, further comprising comparing a result of said calculating a simulated circuit operation to at least one predetermined criterion.

33. The method for electromagnetic compatibility-driven design according to claim 32, further comprising modifying at least one among the circuit description and the placement information based on a result of said comparing.

34. A data storage medium having machine-readable code, the machine-readable code including instructions executable by an array of logic elements, said instructions defining a method for electromagnetic compatibility-driven design comprising:

calculating an induced electromagnetic field based on (A) placement information relating to a relative placement of a plurality of circuit components

and (B) at least one emissions profile, each emissions profile corresponding to one among the plurality of circuit components, and

calculating effects of the induced electromagnetic field based on at least one susceptibility profile, each susceptibility profile corresponding to one among the plurality of circuit components.

35. The data storage medium according to claim 34, wherein calculating an induced electromagnetic field is based on a circuit description including (E) at least one circuit component characterization, each circuit component characterization corresponding to one among the plurality of circuit components, and (F) connectivity information, said connectivity information relating to at least one electrical pathway, each electrical pathway connecting at least two among the plurality of circuit components.

36. The data storage medium according to claim 35, further comprising calculating a simulated circuit operation based on the placement information, the circuit description, and the calculated effects of the induced electromagnetic field.

37. The data storage medium according to claim 36, further comprising comparing a result of said calculating a simulated circuit operation to at least one predetermined criterion.

38. The data storage medium according to claim 37, further comprising modifying at least one among the circuit description and the placement information based on a result of said comparing.

39. The data storage medium according to claim 35, wherein the circuit description includes a schematic representation.

40. The data storage medium according to claim 35, wherein the circuit description includes a plurality of expressions in a hardware description language.

41. The data storage medium according to claim 35, wherein the circuit description includes a netlist.

42. The data storage medium according to claim 34, wherein calculating an induced electromagnetic field calculator is based on information relating to at least one among a characteristic and a location of an electromagnetic shielding element.

43. The data storage medium according to claim 34, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements.

44. The data storage medium according to claim 43, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having at least two spatial dimensions.

45. The data storage medium according to claim 43, wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements includes an amplitude and a direction.

46. The data storage medium according to claim 34, wherein the placement information includes information relating to relative spatial locations and orientations among said plurality of circuit components.

47. The data storage medium according to claim 46, wherein the placement information includes information relating to relative spatial dimensions of the plurality of circuit components.

48. The data storage medium according to claim 34, wherein each among said at least one emissions profile includes results of a plurality of electromagnetic near-field measurements, and

wherein for at least one emissions profile, each among said plurality of electromagnetic near-field measurements is associated with a location in a grid, said grid having boundaries and at least two spatial dimensions, and

wherein the information regarding an induced electromagnetic field includes a plurality of amplitudes of the induced electromagnetic field, and

wherein each among said plurality of amplitudes corresponds to one among a plurality of spatial locations, and

wherein at least one among said plurality of spatial locations lies outside the boundaries of said grid.

49. The data storage medium according to claim 34, wherein each susceptibility profile represents a response of the corresponding circuit component to an electromagnetic field produced by a source of predetermined character and location.

50. A data storage medium having machine-readable code, the machine-readable code including instructions executable by an array of logic elements, said instructions defining a method for electromagnetic compatibility-driven design, said method comprising:

receiving a circuit description including (A) at least one circuit component characterization, each circuit component characterization corresponding to at least one among a plurality of circuit components, and (B) connectivity information relating to at least one electrical pathway, each electrical pathway connecting at least two among the plurality of circuit components;

based on the circuit description, calculating placement information relating to a relative placement of the plurality of circuit components;

based on the placement information and at least one emissions profile, calculating an induced electromagnetic field; and

based on at least one susceptibility profile, calculating effects of the induced electromagnetic field,

wherein each emissions profile corresponds to one among the plurality of circuit components, and

wherein each susceptibility profile corresponds to one among the plurality of circuit components.

51. The data storage medium according to claim 50, further comprising calculating a simulated circuit operation based on the placement

information, the circuit description, and the calculated effects of the induced electromagnetic field.

52. The data storage medium according to claim 51, further comprising comparing a result of said calculating a simulated circuit operation to at least one predetermined criterion.

53. The data storage medium according to claim 52, further comprising modifying at least one among the circuit description and the placement information based on a result of said comparing.